

## CLAIMS:

1. A non-contact roll contour measuring apparatus comprising  
an analog sensor having a non-contact measuring probe,  
a linear rail,  
a means for moving the sensor along the rail in a line which is in  
parallel with the center line of a roll,  
a means of collecting data from the sensor.
2. The apparatus of claim 1 further comprising a means for positioning the  
rail in parallel with the center line of the roll.
3. The apparatus of claim 1 wherein the sensor is a capacitance sensor.
4. The apparatus of claim 1 further comprising a means of translating and  
displaying the data.
5. The apparatus of claim 1 wherein the sensor comprises multiple  
measuring probes for simultaneously measuring two or more of crown,  
taper, Ra, PPI, traverse and body diameter.
6. The apparatus of claim 1 wherein the probe base line specification  
measuring range equals 0.00" to 0.0005" with a tolerance of  $\pm 1\%$ .
7. The apparatus of claim 1 wherein the probe base line specification  
measuring range equals 0.00" to 0.00005" with a tolerance of  $\pm 0.5\%$ .

8. A method of measuring the surface characteristics of a work roll comprising  
  
providing an analog sensor having a non-contact measuring probe with a linear rail and a means for moving the sensor along the rail in a line which is in parallel with the center line of a roll,  
  
moving the sensor along the rail while collecting data from the sensor.
9. The method of claim 8 further comprising the steps of translating and displaying the data.
10. The method of claim 9 wherein the data is displayed as measurements of crown, taper, Ra, PPI, traverse, body diameter, defects or inclusions.
11. The method of claim 8 wherein the data is collected at a rate of about 1,000 traces per second.
12. The method of claim 8 wherein the data is collected at a rate of about 4,000 traces per second or 16,000 traces per second or more.